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WARRANTY POLICY

Buhler Manufacturing products are warranted for a period of twelve (12) months from original date of purchase, by original purchaser, to be free from defects in material and workmanship under correct, normal agricultural use and proper applications.

Buhler Manufacturing's obligations under this warranty shall be limited to the repair or exchange, at Buhler Manufacturing's option, of any Buhler Manufacturing product or part which proves to be defective as provided. Buhler Manufacturing reserves the right to either inspect the product at the buyer's location or have it returned to the factory for inspection.

The above warranty does not extend to goods damaged or subject to accident, abuse or misuse after shipment from Buhler Manufacturing's factory, nor to goods altered or repaired by anyone other than an authorized Buhler Manufacturing representative.

Buhler Manufacturing makes no Express Warranties other than those, which are specifically described. Any description of goods, including any references and specifications in catalogues, circulars and other written material published, is for the sole purpose of identifying goods and shall conform to such descriptions. Any sample or model is for illustrative purposes only and does not create an Express Warranty that the goods conform to sample or model shown.

The purchaser is solely responsible for determining suitability of goods sold. This warranty is expressly in lieu of all other warranties expressed or implied. Buhler Manufacturing will in no event be liable for any incidental or consequential damages whatsoever. Nor for any sum in excess of the price received for the goods for which liability is claimed.

WARRANTY CLAIMS:
Warranty requests must be prepared on Buhler Manufacturing Warranty Claim Forms with all requested information properly completed. Warranty Claims must be submitted within a thirty (30) day period from date of failure repair.

WARRANTY LABOR:
Any labor subject to warranty **must** be authorized by Buhler Manufacturing. The labor rate for replacing defective parts, where applicable, will be credited at a rate determined by the Company, Buhler Manufacturing.

IMPORTANT FACTS:
Buckets and Bucket Tines Carry No Warranty
Bent Spears Carry No Warranty
Snowblower Fan Shafts Carry No Warranty
Mower Blades Carry No Warranty
Portable Auger Parts Have Two (2) Year Warranty

INTRODUCTION

Congratulations on your choice of a Buhler Farm King 45 Series Rotary-Tiller to complement your landscaping operation. This equipment has been designed and manufactured to meet the needs of a discerning landscaping industry for the efficient tilling of soil.

Safe, efficient and trouble free operation of your Tiller requires that you and anyone else who will be operating or maintaining the machine, read and understand the safety, operation, maintenance and trouble shooting information contained within the Operator's Manual.

This manual covers the 60" & 72" Models. Differences are covered and explained where appropriate. Use the Table of Contents as a guide to locate required information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Buhler Farm King Dealer if you need assistance, information or additional copies of the manual.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the driver's seat and facing in the direction of travel.

SAFETY

YOU are responsible for the SAFE operation and maintenance of your Buhler Farm King 45 Series Rotary-Tiller. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Rotary-Tiller be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alert you to all good safety practices that should be adhered to while operating the Tiller.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

* Tiller owners must give operating instructions to operators or employees before allowing them to operate the Tiller, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.

* The most important safety device on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.

* A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

* Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

* Think **SAFETY!** Work **SAFELY!**

GENERAL SAFETY

1. Have a first-aid kit available for use and know how to use it should the need arise.

2. Have a fire extinguisher available for use and know how to use it should the need arise.

3. Wear appropriate protective gear. This list includes but is not limited to:
   - a hard hat
   - Protective shoes with slip resistant soles
   - Protective glasses or goggles
   - Heavy gloves
   - Wet weather gear
   - Hearing protection
   - Respirator or filter mask

4. Wear suitable ear protection for prolonged exposure to excessive noise.

OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
2. Do not allow riders.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Place all tractor and machine controls in neutral before starting.
7. Never start or operate machine unless sitting on tractor seat.
8. Do not operate machine inside a building unless there is adequate ventilation.
9. Clear the area of bystanders, especially small children, before starting.
10. Stay away from PTO shaft and machine when engaging PTO. Keep others away.
11. Do not put hands or feet under machine while tractor engine or machine is running.
12. Always know what you are tilling. Never operate Tiller in an area that has hidden obstacles. Remove sticks, stones, roots, wire and other objects from working area before starting.
13. Clean reflectors, SMV and lights before transporting.
14. Use hazard flashers on tractor when transporting.
15. Review safety instructions with all operators annually.

MAINTENANCE SAFETY

1. Follow **ALL** the operating, maintenance and safety information in the manual.
2. Support the machine with blocks or safety stands when working beneath it.
3. Follow good shop practices
   - Keep service area clean and dry.
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand.
4. Use only tools, jacks and hoists of sufficient capacity for the job.
5. Never work on rotor blades or under the machine unless the tractor engine is off and driveline is disconnected.
6. Make sure all guards are in place and properly secured when maintenance work is completed.
7. Never wear ill-fitting, baggy or frayed clothing when working around or on any of the drive system components.
8. Keep hands, feet, hair and clothing away from moving or rotating parts.
9. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

TRANSPORT SAFETY

1. Review Transport Safety instructions in tractor manual before moving.
2. Always travel at a safe speed.
3. Always use hazard warning flashers on tractor when transporting unless prohibited by law.
4. Do not exceed 20 mph (32 kph) during transport.

STORAGE SAFETY

1. Store the unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Support frame on stands and blocks to provide a secure base.

SAFETY SIGNS

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs are available from your Dealer Parts Department or the factory.

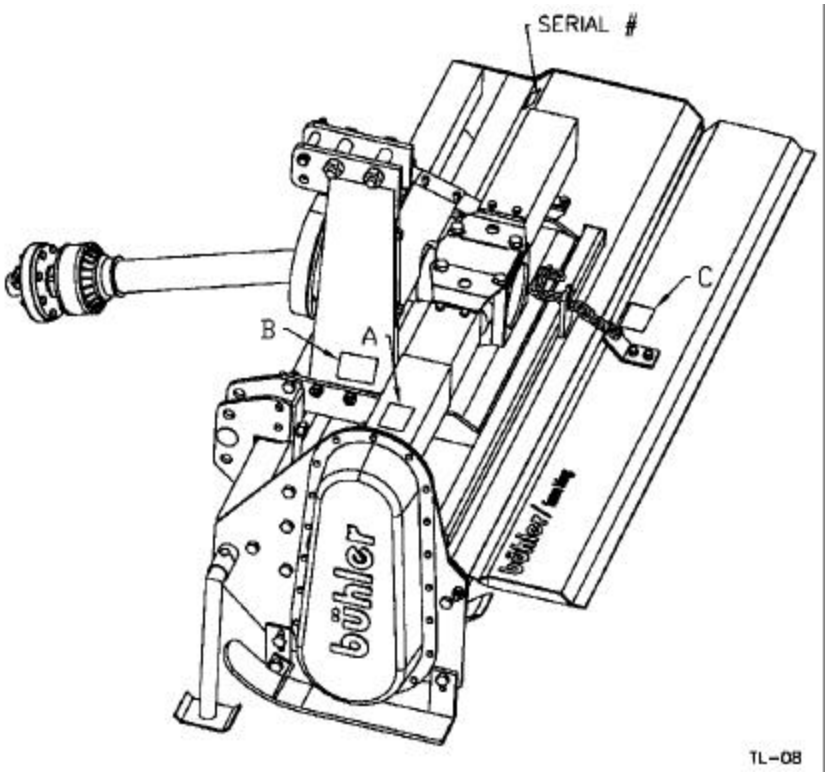
How to Install Safety signs:

* Be sure that the installation area is clean and dry.
* Decide on the exact position before you remove the backing paper.
* Remove the smallest portion of the split backing paper.
* Align the safety sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
* Slowly peel back the remaining paper and carefully smooth the remaining portion of the safety sign in place.
* Small air pockets can be pierced with a pin and smoothed out using the piece of safety sign backing paper.

SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustrations below. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that requires your **SAFETY AWARENESS.**

* Think **SAFETY!** Work **SAFELY!**



SAFETY SIGN LOCATIONS – cont'd.

Safety sign "A"

CAUTION
1. Read Operator's Manual Before using.
2. Do not permit riders.
3. Keep all shields in place.
4. Keep hands, feet, clothing and hair away from moving parts.
5. Stop engine, set brake, remove key and wait for all moving parts to stop before servicing, adjusting, repairing and unplugging.
6. Remove bystanders, especially children, before starting or while operating.
7. Block up before working beneath unit.
8. Review safety instructions annually.
967382

Safety sign "B"

WARNING
ROTATING DRIVELINE HAZARD
To prevent serious injury or death from rotating driveline
1. Keep driveline shields in place when operating.
2. Keep hands, feet and clothing away from moving parts.
3. Operate only at 540 RPM.
967384

Safety sign "C"

WARNING
ROTATING BLADE HAZARD
To prevent serious injury or death from rotating blades
1. Stop engine, remove ignition key and wait for moving parts to stop before opening rear door.
2. Do not place hands or feet under frame when the engine is running.
3. Keep others away.
967383

REMEMBER - If Safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new safety signs must be applied. New safety signs are available from your authorized dealer.

OPERATION

TO THE NEW OPERATOR OR OWNER

The Buhler Farm King 45 Series Rotary Tiller is a machine that combines the primary and secondary tillage operation into one machine. It breaks up the soil and prepares the seed bed in one pass. Rotational power to the rotor is provided by the tractor PTO. Be familiar with the machine before starting.

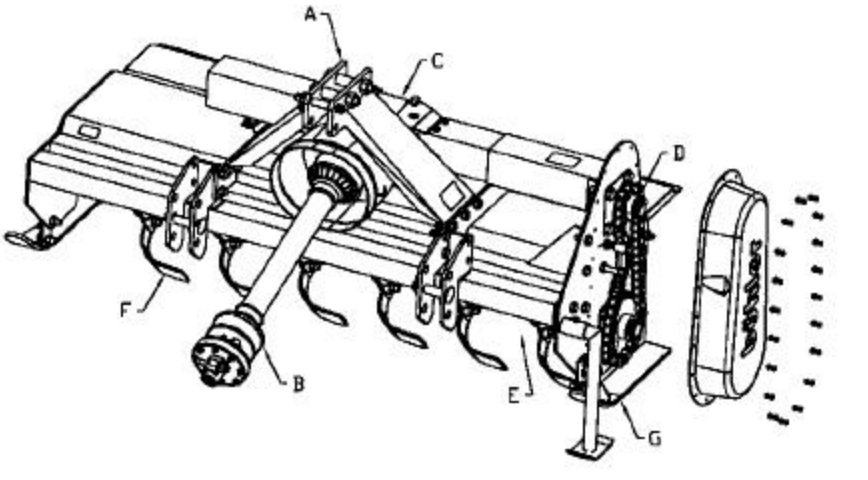
It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the work site. Untrained operators are not qualified to operate the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your Tiller will provide many years of trouble-free service.

MACHINE COMPONENTS

The Buhler Farm King 45 Series Rotary Tiller consists of a rotating drum that is equipped with bent blades for breaking up and leveling soil. The blades are turned through the soil while the machine moves over the working area. A Drag Shield is used to maintain a level seedbed. Rotational power to the drum is provided by the PTO on the tractor. The power is transmitted through the gearbox in the center of the machine to the chain drive down the side. The A-frame can be moved to offset the machine.

A Point A-Frame
B PTO Driveline
C Gear Box
D Chain Drive
E Rotor
F Blades
G Skid Plates



MACHINE BREAK-IN

Although there are no operational restrictions on the Tiller when used for the first time, it is recommended that the following mechanical items be checked:

A. After operating for 1/2 hour or after completing 1/2 acre:
   1. Check all nuts, bolts and other fasteners. Tighten to their specified torque level.
   2. Check that the blades are in good condition and bolted securely to the rotor.
   3. Check the oil level in the gear box. Add as required.
   4. Check that the PTO driveline shield turns freely.
   5. Lubricate all grease points.

B. After operating for 5 hours and 10 hours:
   1. Repeat items 1 through 5 of Section A.
   2. Then go to the regular service schedule as defined in Section 5.

PRE-OPERATION CHECKLIST

Efficient and safe operation of the Rotary Tiller requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both personal safety and maintaining the good mechanical condition of the Tiller that this checklist is followed.

Before operating the machine and each time thereafter, the following areas should be checked off:

- ☐ Lubricate the machine per the schedule outlined in the Service and Maintenance Section.
- ☐ Use only a tractor of adequate power and weight to pull the machine.
- ☐ Check that the machine is properly attached to the tractor. Be sure retainers are used on the mounting pins.
- ☐ Check the oil level in the gearbox. Add as required.
- ☐ Check that the PTO driveline shield turns freely and that the driveline can telescope easily. Clean and lubricate if required.
- ☐ Before using PTO: Slip Clutch PTO's are shipped with the slip clutch disengaged. Socket set screws in the clutch assembly must be fully backed out to engage the clutch.
- ☐ Check the blades. Be sure they are not damaged or broken and are bolted securely to the rotor. Repair or replace as required.
- ☐ Remove any entangled material on rotating parts.
- ☐ Install and secure all guards, doors and covers before starting.

EQUIPMENT MATCHING

To insure the safe and reliable operation of the Tiller, it is necessary to use a tractor with the correct specifications. Use the following list as a guide in selecting a tractor to use on the machine.

1. **Horsepower:** Use Table 1 as a guide in selecting the tractor horsepower appropriate for your width of machine. Use only small Agricultural tractors on this machine.

Table 1 Horsepower vs. Width

Model	Width	Horsepower
4560	60 inches (1.5m)	45 max.
4572	72 inches (1.8m)	45 max.

ALERT: Do not exceed the recommended horsepower levels. The use of horsepower will void the warranty.

2. **3 Point Hitch:**
The Tiller is equipped with a Category 1, 3 point hitch. Be sure the tractor 3 point hitch is in the Category 1 configuration. A Category 1 Quick Hitch will fit on the Tiller.

Install the lift arm blocks or shorten the stop chains to place the arms into the non-sway configuration. Refer to the tractor manual for details.

3. **Load Sensing Hydraulics:**
Many newer tractors are equipped with "Load Sensing" hydraulics. It is the responsibility of the operator to set the tractor hydraulic system to provide "float" on the 3 point hitch.

The float feature will allow the machine to follow the ground contours during operation.

4. **PTO Shaft:**
The tractor must have a 1 3/8" 6 spline 540 RPM PTO shaft to fit the driveline shaft supplied with the machine. Do not use shaft adapters or operate at any other speed.

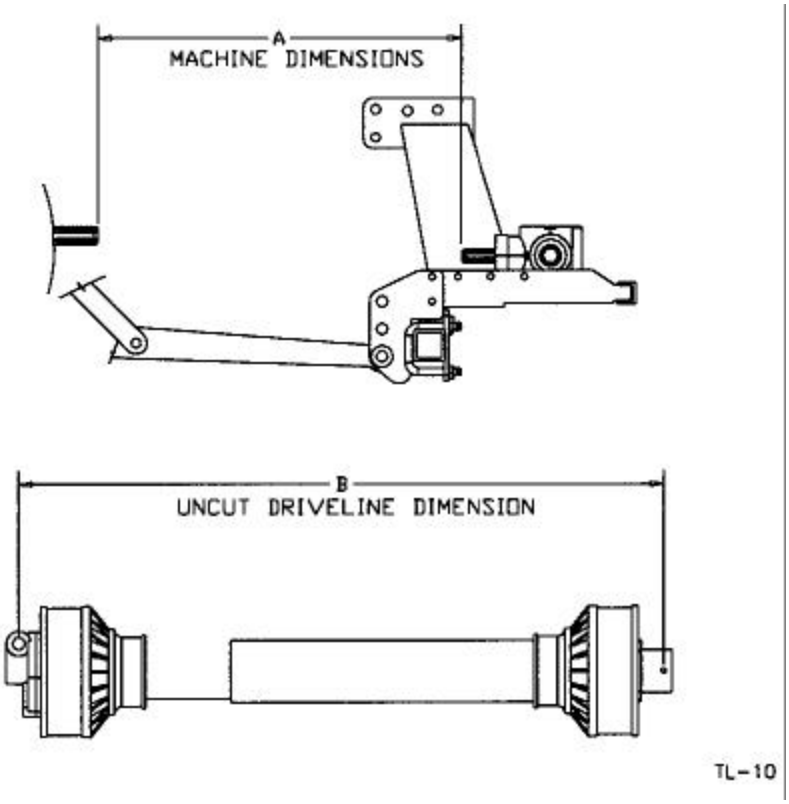
It is not recommended that a tractor with variable speed PTO's be used on the Tiller. Operating at speeds faster than 540 RPM will overload the drivetrain and lead to early failures. Attach the safety chains supplied with the PTO shaft, allowing sufficient slack for the Driveline during turns and operation. Check booklet attached to the PTO for instructions.

DRIVELINE DIMENSION

A PTO driveline is supplied with the machine. To accommodate the variety of 3 point hitch geometry available today, the driveline can be too long for some machines and must be cut. It is very important that the driveline be free to telescope but not bottom out when going through its working range. If the driveline bottoms out, the bearings on both the machine and tractor PTO shaft will be overloaded and fail in a short time.

When cutting the driveline, follow this procedure:

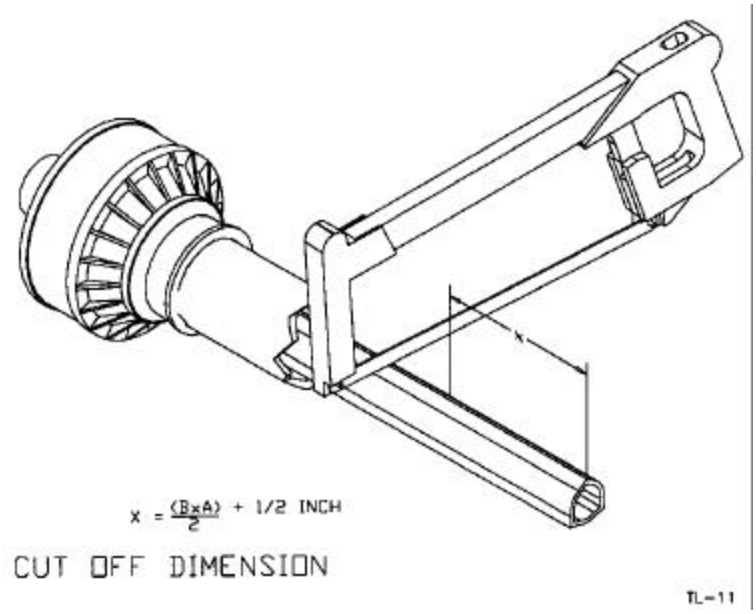
1. Clear the area of bystanders, especially small children.
2. Attach the Tiller to the tractor but do not attach the driveline.
3. Raise the machine until the input shaft is level with the tractor PTO shaft.
4. Measure the dimension between the locking groove on the tractor PTO shaft and the groove on the Tiller input shaft.
5. Measure the same dimensions on the compressed driveline.

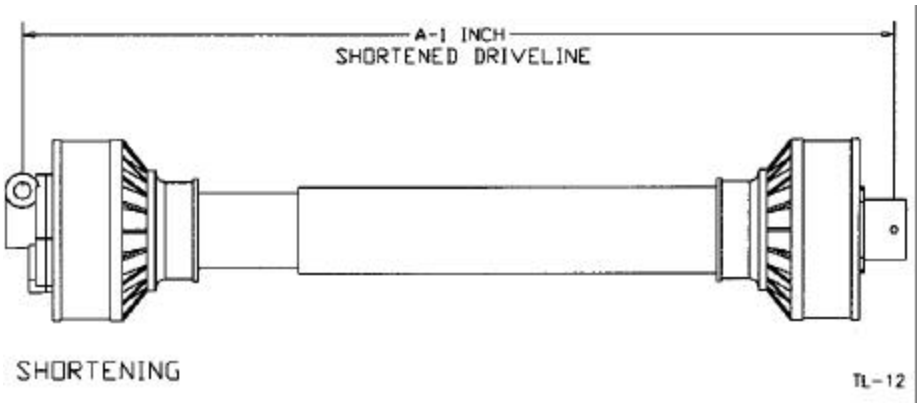


6. If the driveline dimension exceeds the machine dimension, the driveline will have to be cut.

DRIVELINE DIMENSION - CONT'D.

7. Pull the driveline apart and cut 1/2 of the dimension determined in step 5 from each end. Add another ½ inch (12MM) to each cut off segment.





8. Be sure to use a hacksaw to cut 1/2 from each end of the separated shaft. Cut both the plastic tube and the metal cores.
9. Use a file to remove the burrs from the edges that were cut.
10. Assemble the two ends of the shaft.
11. Make sure that the shaft can telescope freely. If it does not, separate the two parts and inspect for burrs or cuttings on the shaft ends. Be sure it telescopes freely before installing.
12. Make sure the plastic covering shield is free to rotate on the shaft before installing on the machine.

ATTACHING/UNHOOKING

The Tiller should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a tractor, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Be sure the tractor 3 point hitch is in the Category 1 configuration and the lift arms are in the non-sway configuration (See tractor manual).

3. Make sure there is enough room and clearance to safely back up to the Tiller.

4. Attach the PTO driveline to the Tiller if it was removed for storage (See Assembly).

5. While backing up, align the lift arm balls with the mounting pins on the Tiller.
   ALERT: It may be necessary to add weight to the 3 point hitch to lower the lift arms.

6. Stop tractor, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.

7. If your tractor is not equipped with a Quick Hitch:
   a. Align the left lower link arm with the mounting pin.
   b. Slide the ball over the pin and install the Linch Pin.
   c. Use the screw jack on the right lift arm to align the ball with the pin.
   d. Slide the ball over the mounting pin and install the Linch Pin.
   e. Level the frame using the screw jack.
   f. Remove retainer and pin from the mast.
   g. Align top link using the turnbuckle.
   h. Insert pin and install Linch Pin
   i. Level frame using the turnbuckle.

8. Attach the PTO driveline:
   a. Check that the driveline telescopes easily and that the shield rotates freely.

   CAUTION: Be sure that the driveline does not bottom out when going through its working angles.

   b. Attach the driveline to the tractor by retracting the locking pin, slide the yoke over the shaft and push on the yoke until the lock pin clicks into position. Pull on the yoke to be sure it is locked in position.
   c. Attach the anchor chain on the driveline shield to the frame.

9. Use the 3 point hitch to raise the machine.

10. Remove the blocks from under the Depth Gauge Shoes.

11. Reverse the above procedure when unhooking from the tractor.

FIELD OPERATION

Buhler Farm King 45 Series Rotary Tillers are designed with the inherent flexibility of operating well in almost any kind of soil and terrain conditions. However, the operator has the responsibility of being familiar with all operating and safety procedures and following them.

Each operator should review this section of the manual at the start of the season and as often as required to be familiar with the machine. When using, follow this procedure:

1. Review and follow the pre-operation Checklist. Review Safety Instructions.

2. Attach the tractor to the machine. See Attaching/Unhooking Section.

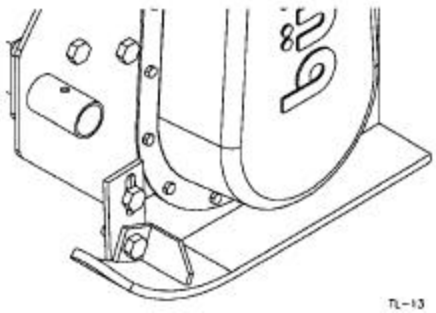
3. Before going to the field review Transporting Section.

4. Pull into the field and position the machine in a level area.

5. Lower into working position.

6. Set the machine:
   a. Level the frame:
      Use the screw jack on the right lift arm to level the frame from side-to-side.
   b. Depth: Use the Depth Gauge Shoes on each side to set the operating depth. Position the Depth Gauge Shoes in the top hole for shallow tilling and in the bottom hole for deep tilling.

ALERT: In soft soil conditions, the skid plates become less effective and sink into the ground. Use the turnbuckle on the top link to set the frame angle so the bottom of the Depth Gauge Shoes are level when operating.



   c. Offset:
      The Category Pin Brackets can be moved 3 to 4 inches along the Deck Assembly to either side of center if required. Center the machine for normal operation. Offset if the tire tracks are wider than the machine or when tilling around trees, bushes or other areas.
   d. Drag Shield:
      Adjust the chain in the Adjustment Bracket to set the height of the Drag Shield. Set the Drag Shield to just contact the tilled soil when operating.

FIELD OPERATION - cont'd.

7. Align the unit with the working area.

8. Starting machine:
   a. Run the engine at low idle.
   b. Slowly engage the PTO control to start the machine.
   c. Slowly bring the engine to the rated PTO speed. Never exceed rated speed.
   d. Lower the machine to the ground and proceed down the field.

9. Stopping machine:
   a. Slowly decrease engine speed to low idle.
   b. Raise machine out of the ground.
   c. Disengage PTO clutch slowly.

   CAUTION: Place all controls in neutral, lower machine, stop engine, set park brake remove ignition key and wait for all moving parts to stop before dismounting.

10. Ground Speed:
    Travel speed can vary between 2 and 5 mph (3 and 8 km/h) depending on the soil and terrain conditions. It is the responsibility of the operator to note the condition of the job being done and set the speed to obtain a quality tilling job and maintain control of the machine.

    The speed can be increased to optimize tilling.

    Decrease speed if you want the soil worked to a finer texture.

11. Operating hints:

    a. Determine the moisture content of the soil before starting. Soil that is too wet will "ball-up" in the rotor blades making tilling impossible. Sandy soils normally can be worked better than heavy clay or loam soils. It is the responsibility of the operator to determine the soil type and moisture content before starting. It may be necessary to wait for the soil to dry out before starting to work.
    b. Set the length of the Top Link to obtain the quality of the job desired without needlessly using power and fuel in churning the soil. Use the condition of the seedbed as your guide.
    c. When tilling hard or compacted soils, it is recommended that two passes be used when working. Use the Depth Gauge Shoes on each side of the frame to adjust the tilling depth of the machine. The second pass should be made at an angle to the first to give a consistent job and minimize compaction.
    d. Always remove heavy crop cover, all grass and weeds, before starting to prevent rotor plugging.

FIELD OPERATION - cont'd.

e. The rotation of the Tines propel the machine in the forward direction. Always use the tractor transmission to control the speed of forward travel.

f. Always disengage the PTO control and raise the machine out of the ground before depressing the master clutch on the tractor.

g. Use low gear on the tractor to start the job. Increase the speed of forward travel only as the quality of the job and power available will allow.

h. If the slip clutch slips, reduce the ground speed or raise the machine slightly out of the ground.

TRANSPORTING

When transporting the machine, review and follow these instructions:

1. Be sure all bystanders are clear of the machine.
2. Be sure that the machine is securely attached to the tractor and all retainer pins are installed.
3. Clean the SMV emblem, lights and reflectors and be sure they are working.
4. Be sure you are in compliance with all applicable lighting and marking regulations when transporting. Check with your local authorities.
5. Be sure your machine can clearly be seen by overtaking and oncoming traffic.
6. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder if permitted by law.
7. Do not allow riders.
8. Always use hazard flashers on the tractor when transporting unless prohibited by law.
9. Use pilot vehicles front and rear when transporting during times of limited visibility.
10. Never transport the machine faster than 20 mph (32 km/h). The ratio of the tractor weight to the Tiller weight plays an important role in defining acceptable travel speed. Table 2 summarizes the recommended travel speed to weight ratio.

Table 2 Speed vs. weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of towing machine
Up to 32 km/h (20 mph)	1 to 1, or less
Up to 16 km/h (10 mph)	2 to 1, or less
Do not tow	More than 2 to 1

STORAGE

After the season's use, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the start of next season. To insure a long, trouble free life, this procedure should be followed when preparing the unit for storage:

1. Clear the area of bystanders, especially small children.

2. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris and residue.

3. Inspect the blades and rotors for damage or entangled material. Repair or replace damaged parts. Remove all entangled material.

4. Change the oil in the gear box.

5. Lubricate all grease fittings. Make sure that all grease cavities have been filled with grease to remove any water residue from the washing.

6. Touch up all paint nicks and scratches to prevent rusting.

7. Move to storage area.

8. Select an area that is dry, level and free of debris.

9. Place blocks under the Depth Gauge Shoes.

10. Unhook from tractor.

11. If the machine cannot be placed inside, cover with a waterproof tarpaulin and tie securely in place.

12. Store the machine in an area away from human activity.

13. Do not allow children to play on or around the stored machine.

SERVICE AND MAINTENANCE

SERVICE

Follow Maintenance Safety Instructions as outlined.

FLUIDS AND LUBRICANTS

1. Hydraulic Oil:
   Use a standard hydraulic oil for all operating conditions.

2. Gear Box Oil:
   Use an SAE 85W90 gear oil for all operating conditions.

   Gear Box Capacity: 1 U.S. quart (0.85 liter)

3. Chain Case Grease:
   Use a multi purpose grease for all operating conditions.
   If chain case is removed, refill with 800 grams of grease.

4. Storing Lubricants:
   Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

GREASING

Use a Maintenance Checklist to keep a record of all scheduled maintenance.

1. Use a hand-held grease gun for all greasing.

2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.

3. Replace and repair broken fittings immediately.

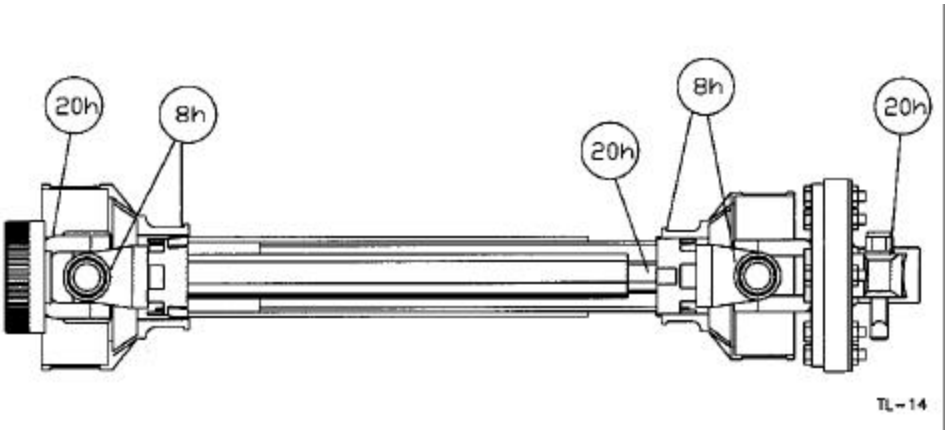
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

SERVICING INTERVALS

The periods recommended below are based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication or oil changes.

8 Hours or Daily; Telescoping Tubes and Quick Disconnect 20 Hours

1. Lubricate PTO driveline (7 locations).



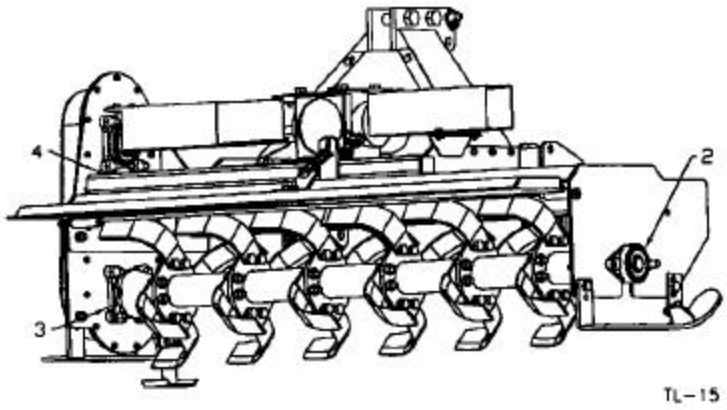
ALERT: When using the safety chains supplied with the PTO shaft, the shield bearings must be kept lubricated.

80 hours or once a season:

2. Lubricate rotor driven end bearing (1 location)

3. Lubricate rotor drive end bearing (1 location).

4. Lubricate chain drive bearing (1 location)

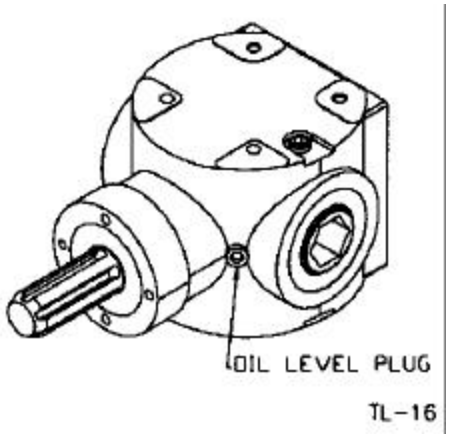


- use 3 squirts only
- push grease in gradually

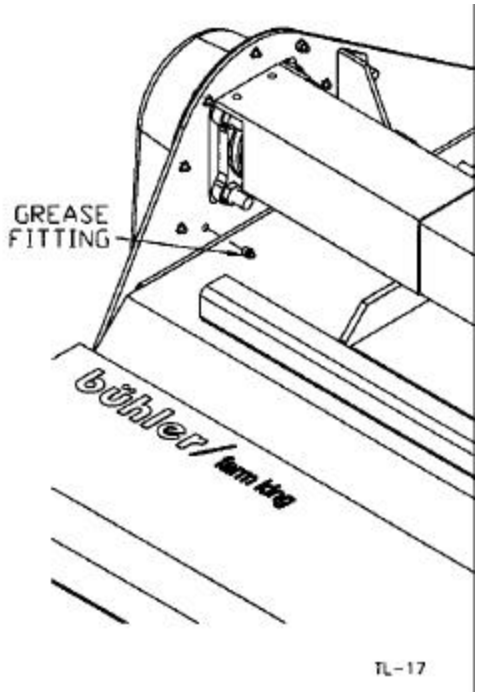
SERVICING INTERVALS – cont'd.

40 Hours

1. Check gear box oil level.
   Add as required



2. Add approximately 10 squirts
   of grease in chain case.



Annually

1. Change gear box oil. Refill with SAE 85W90 gear oil.

2. Wash machine.

MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation.

A-FRAME ADJUSTMENT

When moving the hitch along the front frame to adjust the offset, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Raise the machine so it is slightly out of the ground.
3. Loosen the u-bolts through the Category Pin brackets.
4. Slide the A-frame along the Deck until the machine is set at the desired offset.
5. Tighten the clamping bolts to their specified torque.

TINE REPLACEMENT

When the tines are damaged in any way, they will need to be replaced. When replacing, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Raise the machine until the tines are slightly above the ground.
3. Stop engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.
4. Place blocks under each Depth Gauge Shoe to support the machine.
5. Raise the Drag Shield and secure in the up position.
6. Wear leather or heavy canvas gloves when handling Tines.
7. Remove mounting bolts from Tine.

   ALERT: An alternate method would be to disconnect the machine from the tractor and tip it forward on its nose.
8. Install a new replacement blade and tighten the mounting bolts to their specified torque.
9. Lower the rear gate.
10. Remove the blocks under the skid plates.

SLIP CLUTCH

During normal operation, the slip clutch can release and slip when encountering an obstruction or when overloaded. It is designed to slip when the load exceeds 3 times its nominal rating. When the clutch slips too frequently during normal operating conditions, it is necessary to replace the clutch linings. **NOTE:** The PTO shafts are shipped with the slip clutch disengaged. There are four socket set screws on the inside of the clutch assembly, which are turned out as far as they go to engage the clutch. Disengage clutch by turning set screws in fully.

To replace clutch linings, follow this procedure:

1. Disengage the clutch by turning the four set screws all the way in.

2. Remove the outside bolts from the clutch assembly and replace the clutch linings.

3. When re-tightening the bolts, stop when the clutch spacer starts to touch the clutch plates. You should be able to just move the spacer by hand when you have the correct bolt torque.

4. Engage clutch by turning out set screws after assembly is complete.

CLUTCH MAINTENANCE

1. Before first use or after storage of more than one month, the clutch should be checked.

2. Disengage clutch by turning in the four socket set screws.

3. Run the PTO at low idle to slip the clutch linings. This will help remove the dirt, corrosion, and surface gloss from the clutch plates and also ensure that the linings are loose.

4. Engage the clutch by turning out the socket set screws.

5. Normally the clutch will slip at a 20% higher torque after the “run in” than before.

6. Check the temperature of the clutch after running for 20 minutes and every 8 hours after that. If the clutch is hot to the touch or smokes, check that the outside bolts are correctly tightened as explained in slip clutch section. If clutch still slips, linings may have to be replaced.

TROUBLE SHOOTING

The Buhler Farm King 45 Series Rotary Tiller moves curved Tines on a turning rotor through the ground to break it up and prepare a seed bed. It is a simple and reliable system that requires minimal maintenance.

In the following section, we have listed many of the problems, causes and solutions to the problems that you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local Buhler Farm King distributor dealer. Before you call, please have this Operator's Manual and the serial number from your Tiller ready.

PROBLEM	CAUSE	SOLUTION
Rotor won't turn.	Slip clutch slipping.	Check that clutch is engaged or replace friction plates.
	PTO clutch slipping.	Set PTO clutch. See tractor manual.
	Broken drive chain.	Repair or replace chain.
	****	
Untilled ground behind machine.	3 point hitch not set.	Set 3 point hitch in float. See tractor manual.
	Traveling too fast.	Travel slower.
	Ground very hard.	Slow down. Make 2 passes.
	Machine not leveled.	Adjust screw jack on 3 point arm. Adjust Depth Gauge Shoes.
	****	
Seed bed lumpy.	Traveling too fast.	Slow down. Make 2 passes.
	****	
Uneven seed bed.	Machine not level.	Level machine.
	Drag Shield too high.	Adjust Drag Shield.

ASSEMBLY

The machine is shipped with the PTO shaft not installed.

To install the PTO driveline on the machine, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Clean the splines on the yoke and the input shaft.

3. Align the splines on the yoke and the shaft.

4. Attach the driveline to the tiller by removing the tapered pin and sliding the yoke onto the gearbox shaft. Line up the pin with the groove in the gearbox shaft and fasten with the tapered pin. The plastic gearbox PTO guard has a removable door on top to access the pin. The A-frame brace can be removed to improve accessibility. Replace the brace after tightening the nut on the tapered pin.

5. Be sure the yoke is locked in position. Pull on the yoke to be sure the pin clicks into position.

6. Be sure that the PTO shaft is the appropriate length for the tractor/Tiller combination. Refer to Driveline Dimension Section for details.

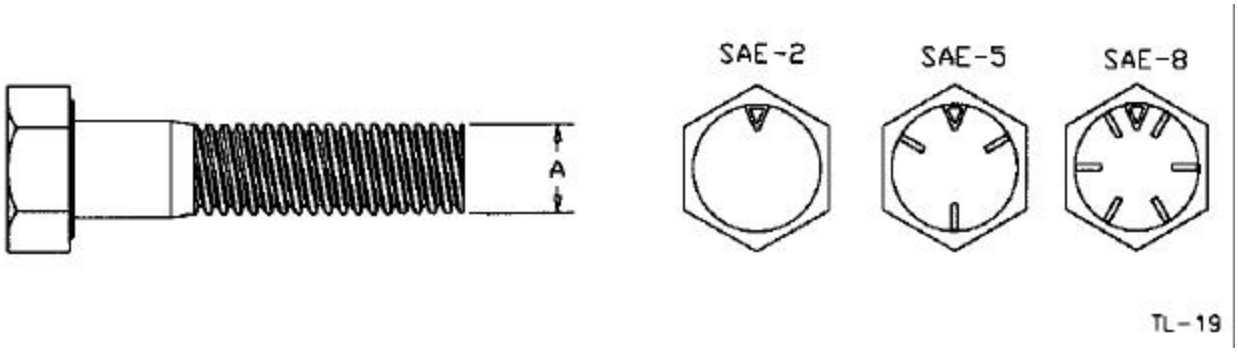
BOLT TORQUE

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and cap screws. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

ENGLISH TORQUE SPECIFICATIONS

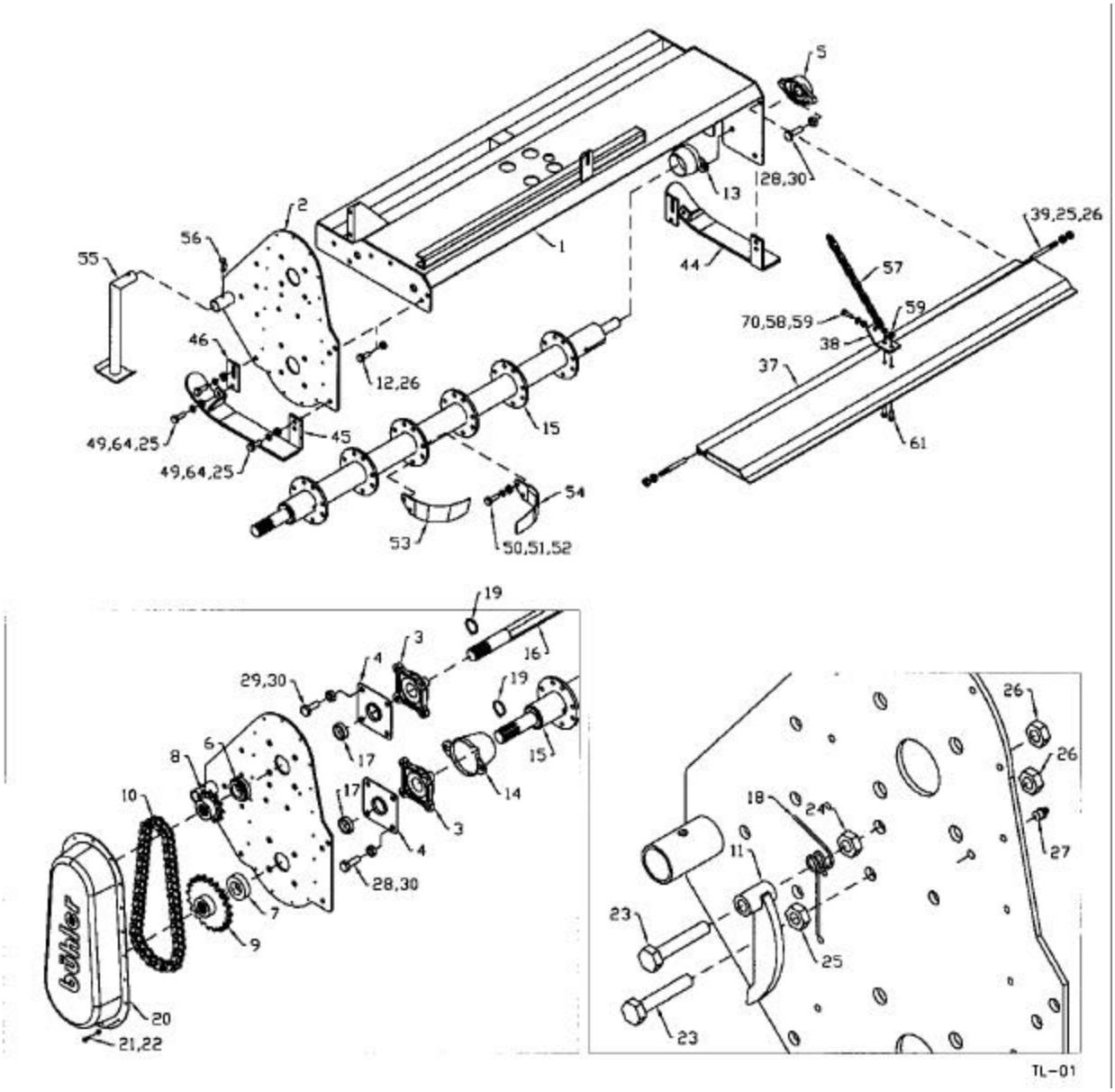
Bolt Diameter "A"	Bolt Torque * SAE2 N.m	(lb-ft)	SAE 5 N.m	(lb-ft)	SAE 8 N.m	(lb-ft)
¼"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
½"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
¾"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	345	(225)	850	(630)	1320	(970)

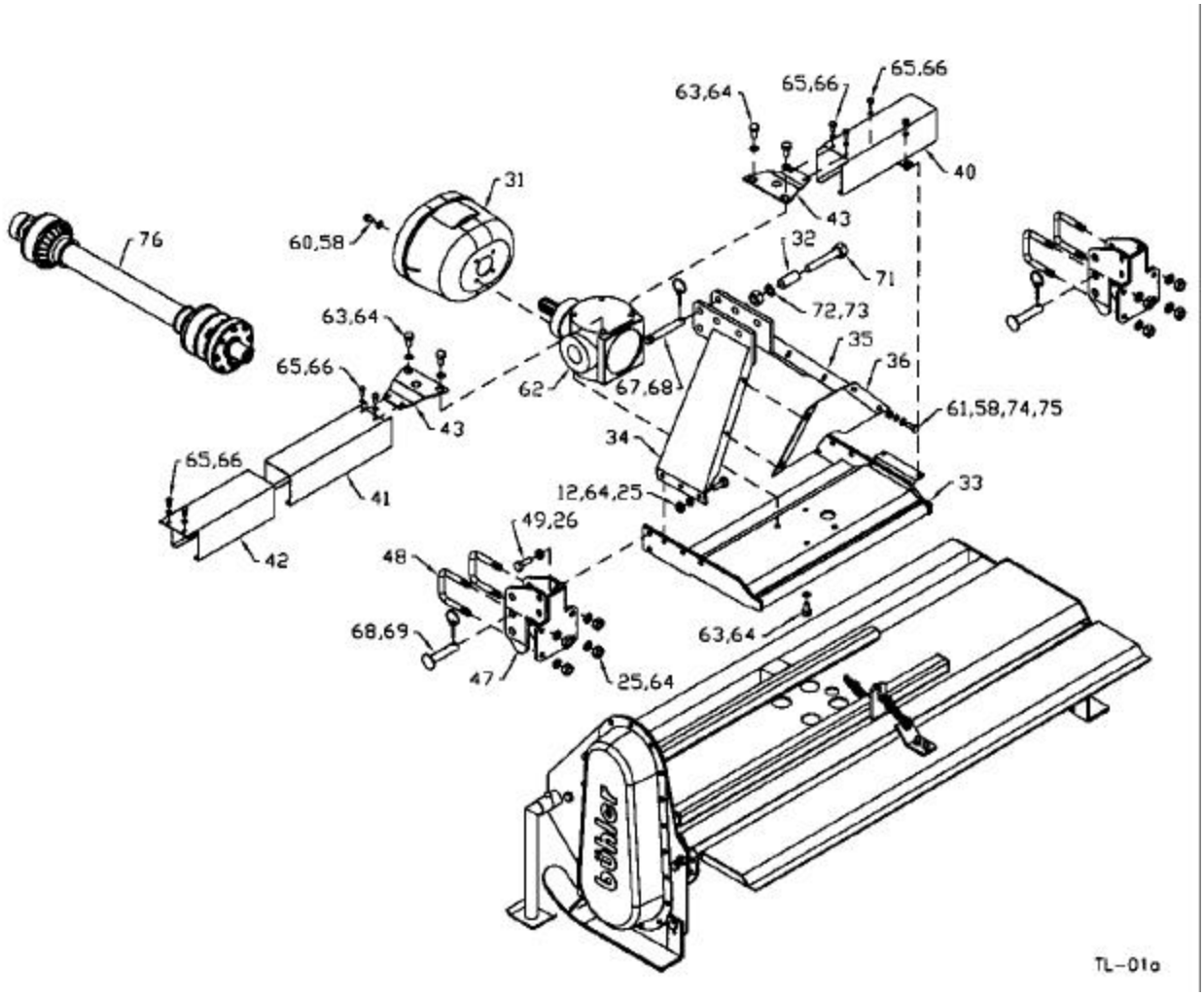


Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and cap screws are identified by their head markings.

45 SERIES TILLER

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PARTS LIST

WHEN ORDERING PARTS

Always give your dealer the Model, Color and Serial Number of your machine to assist him in ordering and obtaining the correct parts. Use the exploded view and tabular listing of the area of interest to exactly identify the required part.

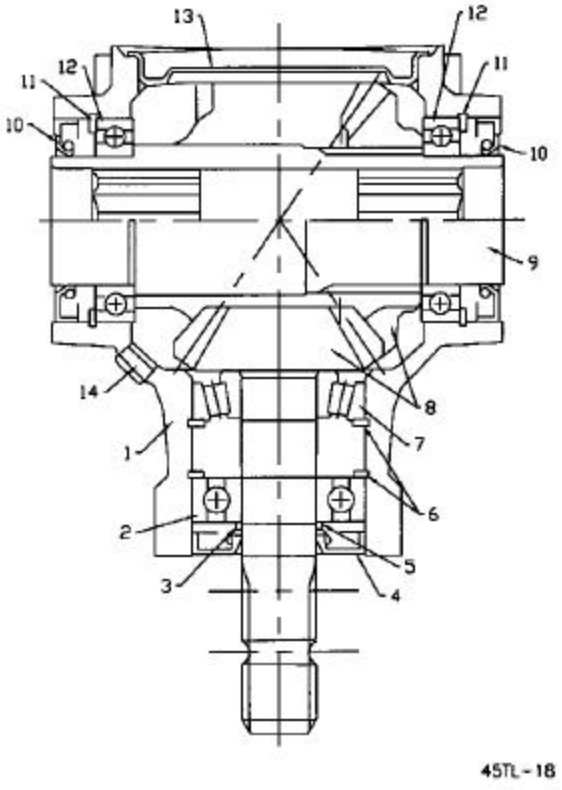
60" & 72" 45 SERIES TILLER

Item #	Part #	Description
1	906821	Deck Weld't (60")
	906822	Deck Weld't (72")
2	906903	Side Plate Weld't - L
3	967363	4-Bolt 1 5/8" Flange Bearing
	967364	1 5/8" Bearing Only
4	982006422	1 5/8" Oil Seal Plate
5	912300131	2-Bolt 1 1/4" Flange Bearing
	967294	1 1/4" Bearing Only (greasable)
6	906843	Top Sprocket Spacer 3"OD x 13/16"
7	959223	Bottom Sprocket Spacer 3"OD x 13/16"
8	906845	Sprocket #80 11T 1 5/8" Bore
9	906844	Sprocket #80 20T 1 5/8" Bore
10	906846	Roller Chain #80H x 44 Link w/ Conn
11	967377	Chain Tensioner Weld't
12	81620	1/2" x 1 1/4" Hex Bolt (pl)
13	906827	Shaft Cover Weld't - R
14	906828	Bearing Cover Weld't - L
15	906912	Shaft Weld't (60")
	906916	Shaft Weld't (72")
16	959228	Hex Shaft 1 5/8" x 39" (60")
	959229	Hex Shaft 1 5/8" x 44" (72")
17	912303601	1 5/8" Oil Seal
18	982005711	Tension Spring
19	912301557	1 5/8" Retainer Ring
20	906904	Chain Guard
21	81525	1/4" x 3/4" Hex Bolt (pl)
22	84498	1/4" Lock Nut (pl)
23	81626	1/2" x 2 3/4" Hex Bolt (pl)
24	984077	1/2" Jam Nut (pl)
25	81636	1/2" Hex Nut (pl)

26	812364	1/2'' Lock Nut (pl)
27	967164	Pound-In Grease Fitting
28	84299	5/8'' x 2'' Hex Bolt (pl)
29	84270	5/8'' x 1 3/4'' Hex Bolt (pl)
30	812482	5/8'' Lock Nut (pl)
31	907349	Safety Cone
32	903171	Spacer 1.05''OD x 2 1/4''
33	906837	A-Frame Bottom Weld't
34	903159	A-Frame Top Weld't - L
35	903160	A-Frame Top Weld't - R
36	906838	A-Frame Brace Plate
37	906213	Drag Shield Weld't (60'')
	906921	Drag Shield Weld't (72'')
38	967357	Drag Shield Bracket
39	967362	Drag Shield Hinge Pin
40	903320	Drive Shaft Shield Weld't
41	982605211	Drive Shaft Shield Inner 15''Lg (60'')
	982725211	Drive Shaft Shield Inner 18''Lg (72'')
42	982605311	Drive Shaft Shield 13''Lg (60'')
	982725311	Drive Shaft Shield Outer 16''Lg (72'')
43	906835	Drive Shaft Shield Mount Weld't
44	906923	Depth Gauge Shoe Weld't - R
45	906924	Depth Gauge Shoe Weld't - L
46	983000241	Adjustment Mount Bracket
47	907572	Cat. Pin Bracket Weld't
48	907573	1/2'' x 10 1/4'' U-Bolt (pl)
49	84277	1/2'' x 1 1/2'' Hex Bolt (pl)
50	812763	1/2'' x 1 1/2'' Hex Bolt NF Gr8 (pl)
51	9812767	1/2'' Lock Washer Gr8 (pl)
52	812765	1/2'' Hex Nut NF Gr8 (pl)
53	967484	LH Tine
54	967483	RH Tine
55	982000500	Side Stand Weld't
56	912301660	Snapper Clip
57	982000471	1/4'' x 14 Link Chain
58	84000	3/8'' BS Flat Washer (pl)
59	812363	3/8'' Lock Nut Gr8 (pl)
60	84072	3/8'' x 3/4'' Hex Bolt (pl)
61	86170	3/8'' x 1'' Hex Bolt (pl)
62	906913	Gearbox 2050
63	81619	1/2'' x 1'' Hex Bolt (pl)
64	81637	1/2'' Lock Washer (pl)
65	81549	5/16'' x 3/4'' Hex Bolt (pl)
66	81569	5/16'' Lock Washer (pl)
67	965807	Cat. 1 Top Link Pin

68	965911	7/16'' Linch Pin
69	967361	7/8'' x 4'' Clevis Pin (pl)
70	86171	3/8'' x 1 1/4'' Hex Bolt (pl)
71	811790	3/4'' x 4 1/2'' Hex Bolt (pl)
72	81701	3/4'' Lock Washer (pl)
73	81700	3/4'' Hex Nut (pl)
74	81593	3/8'' Lock Washer (pl)
75	81592	3/8'' Hex Nut (pl)
76	F0409	PTO Shaft

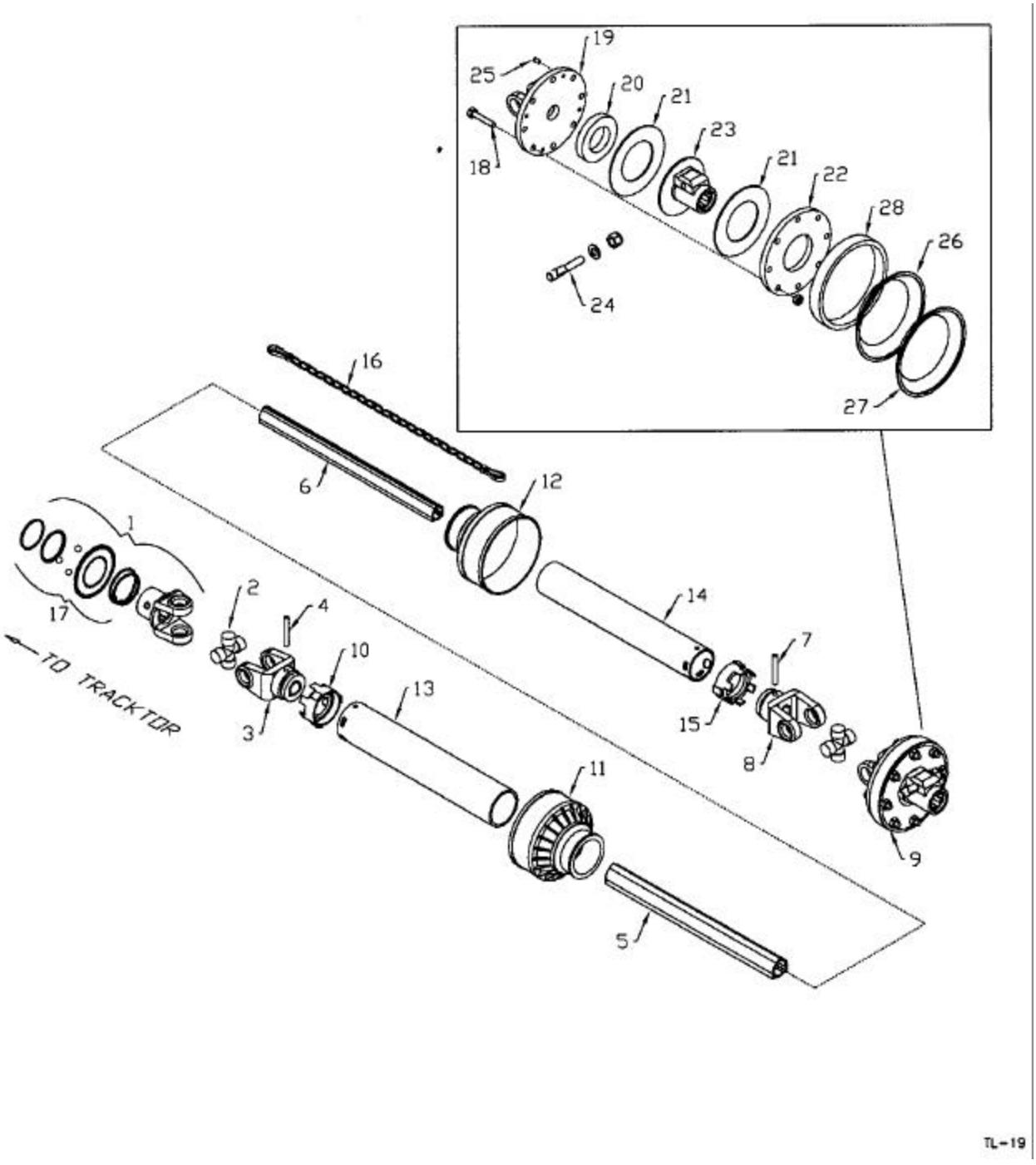
45 SERIES TILLER GEARBOX - #906913



45 SERIES TILLER GEARBOX PARTS LIST

ITEM	PART NO.	DESCRIPTION
	906913	Gearbox Complete
1	907151	Housing
2	907152	Ball Bearing
3	967303	Snap Ring
4	907153	Oil Seal
5	907154	Ring
6	967305	Snap Ring
7	907155	Roller Bearing
8	907160	Gear Set
9	907161	Hex Shaft
10	907162	Oil Seal
11	967398	Snap Ring
12	967328	Ball Bearing
13	907163	Cover
14	967312	3/8" Oil Plug

PTO - F0409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45 SERIES TILLER PTO PARTS LIST

ITEM	PART NO.	DESCRIPTION
	F0409	Gearbox Complete (104 Series)
	907193	Outer Half Shaft - Tracktor
	907194	Inner Half Shaft - Implement
1	907186	Yoke - Tracktor End
2	936540	Repair Kit
3	936344	Outer Tube Yoke
4	936351	Flex Pin Outer Yoke
5	907187	Cardan Tube, Outer
6	907188	Cardan Tube, Inner
7	936350	Flex Pin, Inner
8	936345	Inner Tube Yoke
9	907189	Torque Lim Ft32r/4
10	966209	Shield Support, Outer
11	966207	Outer Shld Cone
12	966208	Inner Shld Cone
13	907190	Safety Tube, Outer
14	907191	Safety Tube, Inner
15	966210	Shield Support, Inner
16	936402	Complete Chain
17	907192	Complete Sleeve
18	936519	Bolt & Nut
19	907574	Flange Yoke
20	907575	Antifriction Sleeve
21	907576	Clutch Lining
22	907577	Preassure Plate
23	907578	Flanged Hub 1-3/8"Z6
24	910-075	Taper Pin Kit
25	936512	Set Screw, Special
26	907579	Belleville Spring 3.5mm
27	907580	Belleville Spring 2.5mm
28	907581	Spacer Band FT32

SHIPPING BUNDLES

QUANTITY REQUIRED	BUNDLE NUMBER	DESCRIPTION
C4560 60” Tiller c/w PTO		
1	F0414	Deck Assembly
C4572 72” Tiller c/w PTO		
1	F0415	Deck Assembly
OPTIONS		
F9415	Parking Jack w/Mounting Plate	